AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for handling requests for web services, the method comprising the computer-implemented steps of:

receiving at a web services broker, from a particular instance of a client application, a request for information, wherein said request includes an identification of a particular web service from which said particular instance wants said requested information, the request having first input data, the first input data being in a form that cannot be used by said particular web service to service requests for said information~~, the first input data including a value that corresponds to a first parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information, and is separate from the web services broker;~~

~~wherein the particular instance of said client application is separate from the web services broker;~~

in response to receiving said request, the web services broker

accessing, based on said identification of said particular web service,

transformation information that specifies,

how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and

how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

~~transforming~~ providing said ~~first~~ second input data ~~to~~ from said ~~second~~ first input data, wherein ~~transforming~~ providing the ~~first~~ second input data includes ~~changing said value, based on said transformation information, to create a changed value, wherein changing said value includes performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service; and

invoking, in said manner required by said particular web service, said particular web service to obtain said requested information from said particular web service;

wherein said requested information is obtained from said particular web service by providing the ~~changed~~ first value to the particular web service as a value for said first parameter;

wherein the method is performed by one or more computing devices.

2. (Previously Presented): The method of Claim 1, further comprising the steps of:

receiving, from said particular web service, said requested information; and

transforming, based on said transformation information, said requested information to data that said client application can use.

3. (Canceled)

4. (Canceled)

5. (Previously Presented) The method of Claim 1, wherein said transformation information includes a mapping of first input data from a first particular client application to second input data that a first web service can use, and a mapping of first input data from a second particular client application to said second input data that said first web service can use, and wherein said first input data from said first particular client application has a different form than said first input data from said second particular client application.

6. (Previously Presented): The method of Claim 1, wherein said transformation information includes a mapping of first input data from a first client application to second input data that a first web service can use and to second input data that a second web service can use, and wherein said first web service is different than said second web service.

7. (Original): The method of Claim 1, further comprising the computer-implemented steps of:

based on said transformation information, determining whether to use RPC style of communication or messaging style of communication to invoke said particular web service.

8. (Original): The method of Claim 1, further comprising the computer-implemented steps of:

based on said transformation information, determining whether to use SOAP encoding to encode a communication for invoking said particular web service.

9-16. (Canceled):

17. (Currently amended) A method for handling requests for web services, the method comprising the computer-implemented steps of:

receiving at a web services broker, from a particular instance of a client application, a request for information, wherein said request includes an identification of a particular instance of said client application, the request having first input data, the first input data being in a form that cannot be used by a particular web service to service requests for said information~~, the first input data including a value that corresponds to an input parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information and is separate from the web services broker;~~

~~wherein the client application is separate from the web services broker;~~

in response to receiving said request, based on said identification of said particular instance of said client application, the web services broker accessing transformation information;

wherein said transformation information includes a mapping between said identification of said particular instance of said client application and an identification of said particular web service, the mapping indicating that said particular instance prefers said particular web service to service requests from said particular instance for said requested information;

wherein said transformation information specifies how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

based on said transformation information, the web services broker ~~transforming~~ providing said ~~first~~ second input data ~~to~~ from said ~~second~~ first input data, wherein ~~transforming~~ providing the ~~first~~ second input data includes ~~changing said value, based on said transformation information, to create a changed value, wherein changing said value includes performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service;

the web services broker invoking, in said manner required by said particular web service, said particular web service to obtain said requested information from said particular web service;

wherein said requested information is obtained from said particular web service by the web services broker providing the ~~changed~~ first value to the particular web service as a value for said ~~input~~ first parameter;

wherein the method is performed by one or more computing devices.

18. (Previously Presented): The method of Claim 17, wherein said identification of a particular instance of said client application includes identification of a user of said client application.

19. (Previously Presented): The method of Claim 17, further comprising the computer-implemented step of:

passing said second input data as input to said particular web service to service said request.

20. (Previously Presented): The method of Claim 19,

wherein said transformation information specifies a mapping between said first input data output from said client application and data that said particular web service can use as input to determine said requested information; and

wherein said step of passing includes passing said second input data, according to said transformation information, as input to said particular web service to determine said requested information.

21. (Previously Presented): The method of Claim 20,

wherein said transformation information specifies a first manner in which said particular web service can be invoked to service requests for said requested information; and

wherein said step of passing includes passing said second input data in said first manner, to invoke said particular web service to determine said requested information.

22. (Previously Presented): The method of Claim 21,

wherein said transformation information specifies a second manner in which said second input data is characterized so that said particular web service can be invoked to service requests for said requested information; and

wherein said step of passing includes passing, according to said first manner, said second input data that is characterized according to said second manner, to invoke said particular web service to determine said requested information.

23. (Previously Presented): The method of Claim 22, wherein said second manner includes characterizing said second input data according to Simple Object Access Protocol.

24. (Previously Presented): The method of Claim 19,

wherein said transformation information specifies a first manner in which said particular web service can be invoked to service requests for said requested information and a second manner in which said second input data is characterized in an invocation of said particular web service; and

wherein said step of passing includes passing, according to said first manner, said second input data that is characterized according to said second manner, to invoke said particular web service to determine said requested information.

25. (Original): The method of Claim 17, wherein said particular web service has characteristics that are described in Web Service Description Language.

26. (Original): The method of Claim 25, wherein said particular web service has characteristics that are published in a Universal Description, Discovery, and Integration registry.

27 (Previously Presented): The method of Claim 17, further comprising the steps of:
receiving, from said particular web service, said requested information; and
transforming, based on said transformation information, said requested information to data that said client application can use.

28. (Previously Presented): The method of Claim 17, wherein said transformation information specifies how to transform a plurality of first input data each from a respective client application of a plurality of client applications, to a plurality of second input data each for a respective web service of a plurality of web services.

29. (Canceled)

30. (Previously Presented): The method of Claim 17, wherein said transformation information includes a mapping of first input data from a first particular client application to second input data that a first web service can use, and a mapping of first input data from a second particular client application to said second input data that said first web service can use, and wherein said first input data from said first particular client application has a different form than said first input data from said second particular client application.

31. (Previously Presented): The method of Claim 17, wherein said transformation information includes a mapping of first input data from a first client application to second input data that a first web service can use and to second input data that a second web service can use, and wherein said first web service is different than said second web service.

32. (Previously Presented): The method of Claim 31, wherein said first web service and said second web service can determine the same requested information, and wherein said second input data that said first web service can use is different from said second input data that said second web service can use.

33-48. (Canceled):

49. (Currently amended) A system for handling requests for web services, the system comprising:

means for receiving at a web services broker, from a particular instance of a client application, a request for information from a particular web service, wherein said request includes an identification of a particular web service from which said particular instance wants said requested information, the request having first input data, the first input data being in a form that cannot be used by said particular web service to service requests for said information~~, the first input data including a value that corresponds to a parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information and is separate from the web services broker;~~

~~wherein the particular instance of the client application is separate from the web services broker;~~

means for the web services broker accessing, in response to receiving said request, based on said identification of said particular web service, transformation information that specifies

how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and

how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

means for the web services broker ~~transforming~~ providing, in response to receiving said request, based on said transformation information, said ~~first~~ second input data ~~to~~

from said ~~second~~ first input data, wherein the means for ~~transforming~~ providing the ~~first~~ second input data includes means for ~~changing said value, based on said transformation information, to create a changed value, wherein the means for changing said value includes performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service;

means for the web services broker invoking, in response to receiving said request, based on said transformation information, said particular web service in said manner required by said particular web service to obtain said requested information;

wherein the means for the web services broker invoking includes means for obtaining said requested information from said particular web service by providing the ~~changed~~ first value to the particular web service as a value for said first parameter.

50. (Currently amended) A system for handling requests for web services, the system comprising:

means for receiving at a web services broker, from a particular instance of said client application, a request for information, wherein said request includes an identification of a particular instance of said client application, the request having first input data, the first input data being in a form that cannot be used by a particular web service to service requests for said information~~, the first input data including a value that corresponds to an input parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information and is separate from the web services broker;~~

~~wherein the client application is separate from the web services broker and does not have logic for directly interacting with said particular web service;~~

means for the web services broker accessing transformation information in response to receiving said request and based on said identification of said particular instance of said client application;

wherein said transformation information includes a mapping between said identification of said particular instance of said client application and an identification of said

particular web service, the mapping indicating that said particular instance prefers said particular web service to service requests from said particular instance for said requested information;

wherein said transformation information specifies how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

means for the web services broker ~~transforming~~ providing said ~~first~~ second input data ~~to~~ from said ~~second~~ first input data based on said transformation information, wherein the means for ~~transforming~~ providing the ~~first~~ second input data includes means for ~~changing said value, based on said transformation information, to create a changed value, wherein the means for changing said value includes means for performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service;

means for the web services broker invoking, in response to receiving said request, based on said transformation information, said particular web service in said manner required by said particular web service to obtain said requested information;

wherein the means for the web services broker invoking includes means for obtaining said requested information from said particular web service by providing the ~~changed~~ first value to the particular web service as a value for said first parameter.

51. (Currently amended) The method of Claim 1,

~~wherein the request for information does not include any value for a second parameter required by said particular web service;~~

~~wherein the step of transforming includes supplementing the first input data with a value for said second parameter~~

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein providing said second input data includes changing said second value, based on said transformation information, to create a changed value, wherein changing said second value includes performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

52. (Canceled)

53. (Previously Presented) The method of Claim 1, wherein said transformation information specifies how to transform a plurality of first data each from a respective source of a plurality of sources, to a plurality of second data each for a respective web service of a plurality of web services.

54. (Canceled)

55. (Currently amended) A non-transitory computer-readable ~~storage~~ medium storing instructions for handling requests for web services, the instructions, when executed by one or more computing devices, cause the one or more computing devices to perform the computer-implemented steps of:

receiving at a web services broker, from a particular instance of a client application, a request for information, wherein said request includes an identification of a particular web service from which said particular instance wants said requested information, the request having first input data, the first input data being in a form that cannot be used by said particular web service to service requests for said information~~, the first input data including a value that corresponds to a first parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information, and is separate from the web services broker;~~

~~wherein the particular instance of said client application is separate from the web services broker;~~

in response to receiving said request, the web services broker

accessing, based on said identification of said particular web service,

transformation information that specifies,

how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and

how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

~~transforming~~ providing said ~~first~~ second input data ~~to~~ from said ~~second~~ first input data, wherein ~~transforming~~ providing the ~~first~~ second input data includes ~~changing said value, based on said transformation information, to create a changed value, wherein changing said value includes performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service; and

invoking, in said manner required by said particular web service, said particular web service to obtain said requested information from said particular web service;

wherein said requested information is obtained from said particular web service by providing the ~~changed~~ first value to the particular web service as a value for said first parameter.

56. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, further comprising instructions which, when executed by the one or more computing devices, cause the one or more computing devices to perform the steps of:

receiving, from said particular web service, said requested information; and

transforming, based on said transformation information, said requested information to data that said client application can use.

57. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, wherein said transformation information includes a mapping of first input data from a first particular client application to second input data that a first web service can use, and a mapping of first input data from a second particular client application to said second input data that said first web service can use, and wherein said first input data from said first particular client application has a different form than said first input data from said second particular client application.

58. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, wherein said transformation information includes a mapping of first input data from a first client application to second input data that a first web service can use and to second input data that a second web service can use, and wherein said first web service is different than said second web service.

59. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, further comprising instructions which, when executed by the one or more computing devices, cause the one or more computing devices to perform the computer-implemented steps of:

based on said transformation information, determining whether to use RPC style of communication or messaging style of communication to invoke said particular web service.

60. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, further comprising instructions which, when executed by the one or more computing devices, cause the one or more computing devices to perform the computer-implemented steps of:

based on said transformation information, determining whether to use SOAP encoding to encode a communication for invoking said particular web service.

61. (Currently amended) A non-transitory computer-readable ~~storage~~ medium storing instructions for handling requests for web services, the instructions, when executed by one or more computing devices, cause the one or more computing devices to perform the computer-implemented steps of:

receiving at a web services broker, from a particular instance of a client application, a request for information, wherein said request includes an identification of a particular instance of said client application, the request having first input data, the first input data being in a form that cannot be used by a particular web service to service requests for said information~~, the first input data including a value that corresponds to an input parameter required by the particular web service~~ at least in part because said first input data does not include any value for a first parameter required by the particular web service;

~~wherein the particular web service serves as the source of said requested information and is separate from the web services broker;~~

~~wherein the client application is separate from the web services broker;~~

in response to receiving said request, based on said identification of said particular instance of said client application, the web services broker accessing transformation information;

wherein said transformation information includes a mapping between said identification of said particular instance of said client application and an identification of said particular web service, the mapping indicating that said particular instance prefers said particular web service to service requests from said particular instance for said requested information;

wherein said transformation information specifies how to ~~transform~~ provide, from said first input data associated with said request, ~~to~~ second input data that said particular web service can use to service requests for said requested information, and how to invoke said particular web service in a manner required by said particular web service, to obtain said requested information from said particular web service;

based on said transformation information, the web services broker ~~transforming~~ providing said ~~first~~ second input data ~~to~~ from said ~~second~~ first input data, wherein ~~transforming~~ providing the ~~first~~ second input data includes ~~changing said value, based on said transformation information, to create a changed value, wherein changing said value includes performing a lookup operation, based on said value, to identify the changed value~~ supplementing the first input data with a first value for said first parameter required by the particular web service;

the web services broker invoking, in said manner required by said particular web service, said particular web service to obtain said requested information from said particular web service;

wherein said requested information is obtained from said particular web service by the web services broker providing the ~~changed~~ first value to the particular web service as a value for said ~~input~~ first parameter.

62. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, wherein said identification of a particular instance of said client application includes identification of a user of said client application.

63. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, further comprising instructions which, when executed by the one or more computing devices, cause the one or more computing devices to perform the computer-implemented step of:

passing said second input data as input to said particular web service to service said request.

64. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 63,

wherein said transformation information specifies a mapping between said first input data output from said client application and data that said particular web service can use as input to determine said requested information; and

wherein said step of passing includes passing said second input data, according to said transformation information, as input to said particular web service to determine said requested information.

65. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 64,

wherein said transformation information specifies a first manner in which said particular web service can be invoked to service requests for said requested information; and

wherein said step of passing includes passing said second input data in said first manner, to invoke said particular web service to determine said requested information.

66. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 65,

wherein said transformation information specifies a second manner in which said second input data is characterized so that said particular web service can be invoked to service requests for said requested information; and

wherein said step of passing includes passing, according to said first manner, said second input data that is characterized according to said second manner, to invoke said particular web service to determine said requested information.

67. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 66, wherein said second manner includes characterizing said second input data according to Simple Object Access Protocol.

68. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 63,

wherein said transformation information specifies a first manner in which said particular web service can be invoked to service requests for said requested information and a second manner in which said second input data is characterized in an invocation of said particular web service; and

wherein said step of passing includes passing, according to said first manner, said second input data that is characterized according to said second manner, to invoke said particular web service to determine said requested information.

69. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, wherein said particular web service has characteristics that are described in Web Service Description Language.

70. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 69, wherein said particular web service has characteristics that are published in a Universal Description, Discovery, and Integration registry.

71. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, further comprising instructions which, when executed by the one or more computing devices, cause the one or more computing devices to perform the steps of:
receiving, from said particular web service, said requested information; and
transforming, based on said transformation information, said requested information to data that said client application can use.

72. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, wherein said transformation information specifies how to transform a plurality of first input data each from a respective client application of a plurality of client applications, to a plurality of second input data each for a respective web service of a plurality of web services.

73. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, wherein said transformation information includes a mapping of first input data from a first particular client application to second input data that a first web service can use, and a mapping of first input data from a second particular client application to said second input data that said first web service can use, and wherein said first input data from said first particular client application has a different form than said first input data from said second particular client application.

74. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 61, wherein said transformation information includes a mapping of first input data from a first client application to second input data that a first web service can use and to second input data that a second web service can use, and wherein said first web service is different than said second web service.

75. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 74, wherein said first web service and said second web service can determine the same requested information, and wherein said second input data that said first web service can use is different from said second input data that said second web service can use.

76. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55,

~~wherein the request for information does not include any value for a second parameter required by said particular web service;~~

~~wherein the step of transforming includes supplementing the first input data with a value for said second parameter~~

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein providing said second input data includes changing said second value, based on said transformation information, to create a changed value, wherein changing said second value includes performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

77. (Currently amended) The non-transitory computer-readable ~~storage~~ medium of Claim 55, wherein said transformation information specifies how to transform a plurality of first data each from a respective source of a plurality of sources, to a plurality of second data each for a respective web service of a plurality of web services.

78. (New) The system of Claim 49,

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein the means for providing said second input data includes means for changing said second value, based on said transformation information, to create a changed value, wherein the means for changing said second value includes means for performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

79. (New) The system of Claim 50,

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein the means for providing said second input data includes means for changing said second value, based on said transformation information, to create a changed value, wherein the means for changing said second value includes means for performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

80. (New) The method of Claim 17,

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein providing said second input data includes changing said second value, based on said transformation information, to create a changed value, wherein changing said second value includes performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

81. (New) The non-transitory computer-readable medium of Claim 61,

wherein the first input data includes a second value that corresponds to a second parameter required by the particular web service;

wherein providing said second input data includes changing said second value, based on said transformation information, to create a changed value, wherein changing said second value includes performing a lookup operation, based on said second value, to identify the changed value; and

wherein said requested information is obtained from said particular web service by providing the changed value to the particular web service as a value for said second parameter.

82. (New) The method of Claim 1,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.

83. (New) The method of Claim 17,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.

84. (New) The system of Claim 49,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.

85. (New) The system of Claim 50,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.

86. (New) The non-transitory computer-readable medium of Claim 55,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.

87. (New) The non-transitory computer-readable medium of Claim 61,

wherein the particular web service serves as the source of said requested information, and is separate from the web services broker; and

wherein the particular instance of said client application is separate from the web services broker.